



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

19

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/941,934	08/30/2001	Joe Cagnelli	9351-072	6332
7590 06/03/2004				
Stephen M. Beney Bereskin & Parr Box 401 40 King Street West Toronto, ON M5H 3Y2 CANADA			EXAMINER DUONG, THO V	
			ART UNIT 3743	PAPER NUMBER
DATE MAILED: 06/03/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/941,934

Applicant(s)

CARGNELLI ET AL.

Examiner

Tho v Duong

Art Unit

3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 and 29-42 is/are rejected.
- 7) ☒ Claim(s) 24-28 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it should avoid using phrases, which can be implied, such as "is provided" and legal phraseology such as "comprises". Correction is required. See MPEP § 608.01(b).

### ***Drawings***

Figure 1a and 1b should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Figures 2a and 2b do not include the reference signs (200,200') as described at line 9 and 13 on page 9. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings filed 8/30/2001 are further objected since all the lines and reference numerals are rough and non-uniform. Figure 1a is not readable since it is so dark. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 and 33-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Ekman H. (FI 000100133). Ekman discloses (figure 1) a heat exchanger and a method of exchanging two fluids comprising an exchange media (corrugated sheet), which is housed in a plurality of cavities (1,2) that are separated from one another in cross section and extend in parallel along the direction of a fluid stream flow; a first flow path (4) to pass a fluid stream through the exchange media; at least a second flow pass to pass a further fluid stream through the exchange media; at least one fluid stream divider (7) to divert the different flow paths to pass the respective fluid streams through different regions of the exchange media; at least one housing (12,13) connected to one end of the exchange media and wherein the flow paths are provided in the housing; the fluid stream divider (7) is provided in the housing; a shaft (9) that extends through the exchange media; and wherein the fluid diverter (7) is rotatably mounted within the housing to change the flow paths of the fluid stream to the exchange media so that at least one of the fluid stream (4,5) is passed through a region of the exchange media that a different fluid stream had passed through

Art Unit: 3743

and wherein the fluid stream through different region of an exchange media is in a concurrent direction.

Claims 1-23, 29-40 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka (US 5,848,885). Tanaka discloses (figures 1, 2, 10 and column 12, lines 23-32) a heat exchanger and a method of exchanging two fluids comprising an exchange media (27), which is housed in a plurality of cavities (spaces between partition walls (29)) that are separated from one another in cross section and extend in parallel along the direction of a fluid stream flow; a first flow path (air) to pass a fluid stream (air) through the exchange media; at least a second flow pass to pass a further fluid stream (exhaust) through the exchange media; at least one fluid stream divider (4,5) to divert the different flow paths to pass the respective fluid streams through different regions of the exchange media; at least one housing (13) connected to one end of the exchange media and wherein the flow paths are provided in the housing (13); the fluid stream divider (4,5) is provided in the housing; a shaft (31) that extends through the exchange media; and wherein the fluid diverter (4,5) is rotatably mounted within the housing (13) to change the flow paths of the fluid streams to the exchange media so that at least one of the fluid stream (air, exhaust) is passed through a region of the exchange media that a different fluid stream had passed through and wherein the fluid stream through different region of an exchange media is in a counter current direction; the fluid diverter (4,5) has a radial extent (radius of the hole) is generally less than the radial extent of the exchange media; the housing (13) comprises a connection portion (13a,16,18) and a dispersion portion (13b) which are in fluid communication with each other; the connection portion has at least two ports (inlet, outlet) adapted to connected to external fluid stream source; the dispersion portion (13b) has an open end (where element 2 is

Art Unit: 3743

located) that is in fluid communication with the exchange media; the connection portion (13a,16,18) has a radial extent (7) that is generally less than the radial extent of the dispersion portion (13b); the fluid stream diverter (4,5) is substantially disposed within the connection portion (13a,16,18); the fluid stream diverter further has a radial extent (periphery of element 3) that is substantially equal to the radial extent of an inner wall of the connection portion (13a) wherein substantially is defined as being largely but not wholly (Merriam Webster's Collegiate Dictionary, 10<sup>th</sup>); the dispersion portion (13b) comprises a plurality of chambers (9a,9b,9c) that are separated from one another; the plurality of cavities that houses the exchange media (27) are disposed within a central housing (28); and each of the cavities are separated by a ceramic partition walls (29). Therefore, each adjacent cavities are in some degrees thermally insulated from each other. Tanaka further discloses (Figure 5, column 12, line 65- column 13, line 36) that the plurality of cavities (N) and the plurality of chambers (Z) are substantially equal in numbers and in cross section evenly spaced about the axial direction when n is equal to 1 and wherein the number of Z chambers can be 3 or 5 when n is equal to 2 and 4. Tanaka further discloses (figures 15,16 and column 23, lines 55-62) a first end housing and the second end housing disposed on either end of the exchange media wherein each end housing has its own fluid stream diverters (4,5) and wherein since the first and second fluid stream diverters rotate in phase during operation, the plurality of chambers of the dispersion portion of the first end housing is in substantially axial alignment with the corresponding plurality of chambers of the dispersion portion of the second end housing (See figure 15).

Art Unit: 3743

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ekman H in view of Herbst (US 4,753,286). Ekman substantially discloses all of applicant's claimed invention as discussed above except for the limitation that the heat exchanger is a counter-current heat exchanger. Herbst teaches (column 1, lines 45-50) a counter-current heat exchanger that has working media being moved in opposite direction in the heat exchanger for the purpose of achieving the highest thermal efficiency for the heat exchanger. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Herbst's teaching in Ekman's heat exchanger for the purpose of achieving the highest thermal efficiency for the heat exchanger.

#### ***Allowable Subject Matter***

Claims 24-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

E. P. Kignell et al. (US 1,858,508) discloses a regenerative heating device.

Art Unit: 3743

Macintyre et al. (US 5,983,986) discloses a regenerative bed heat exchanger and valve therefrom.

Tanaka (US 5,515,909) discloses a flow switching apparatus regenerative alternative combustion burner.

Edgerton (US 4,280,416) discloses a rotary valve for regenerative thermal reactor.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tho Duong whose telephone number is (703) 305-0768. The examiner can normally be reached on from 9:30-6 PM.

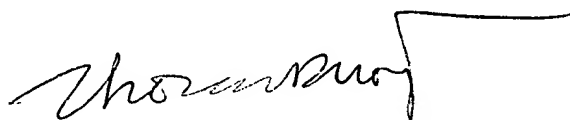
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet, can be reached on (703) 308-0101. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



TD

May 28, 2004



Tho Duong

Patent Examiner.